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ABSTRACT

IMPROVEMENTS IN INTRINSICALLY SAFE CIRCUITS

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5 An intrinsically safe circuit for use in a hazardous environment is described. The circuit includes a plurality of circuit sectors (1,2) which are substantially isolated physically from one another by an electrical insulator, such as air, and are electrically connected, directly or indirectly, so as to define at least one power transfer path 10 (P1) between each said circuit sector (1) and at least one other said circuit sector (2); and power limiting means such as resistors (R1, R2) provided in the or each said power transfer path between at least two said connected circuit sectors for limiting the maximum power transfer value 15 therebetween to a value less than a predetermined threshold value at which combustion in said hazardous environment is initiated. At least two circuit sectors (1,2) having at least one power transfer path (P1) defined therebetween may have different sparking voltages, in which case voltage clamping 20 means such as Zener diodes (Z1, Z2) is provided in each power transfer path between the two circuit sectors having different sparking voltages, for reducing the maximum voltage which may be applied by one of the two circuit sectors to the other.

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